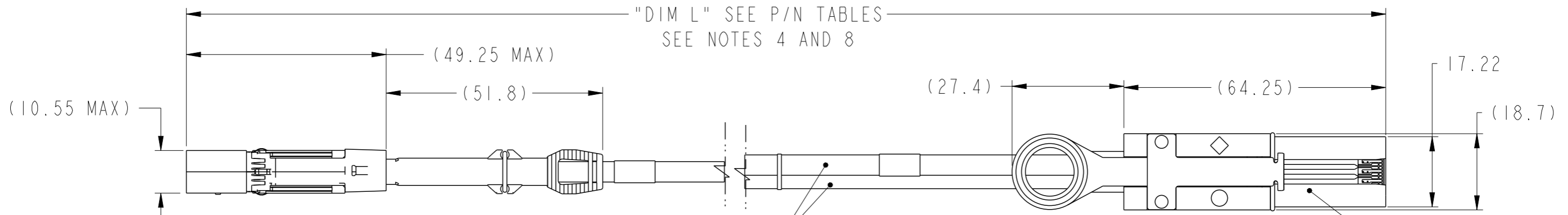
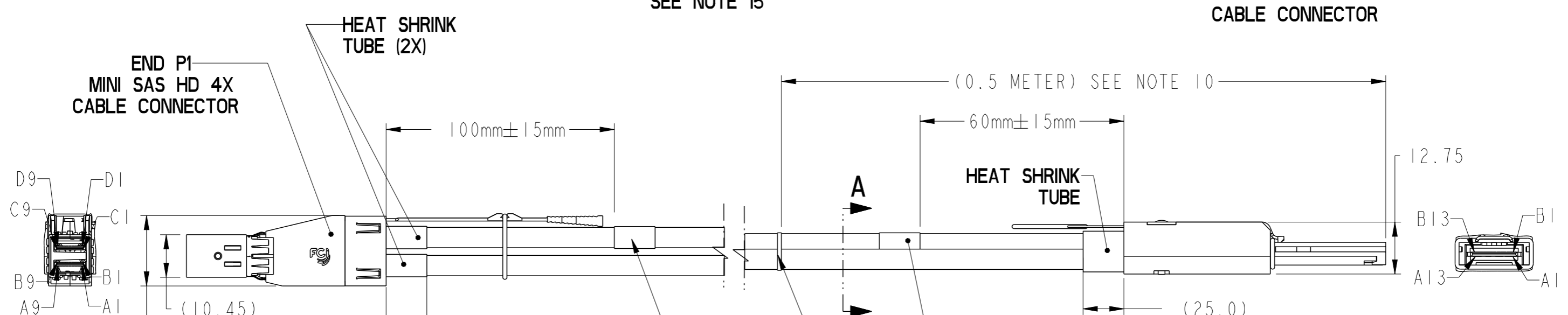


| PRODUCT NUMBER   | DESCRIPTION      | NOTES      |
|------------------|------------------|------------|
| 10117946-XXXXLF  | NON-HF           | SEE SHT. 3 |
| 10117946-XXXXHLF | HALOGEN FREE (H) | SEE SHT. 3 |



2X CABLE  
SEE NOTE 15

END P2  
MINI SAS  
CABLE CONNECTOR



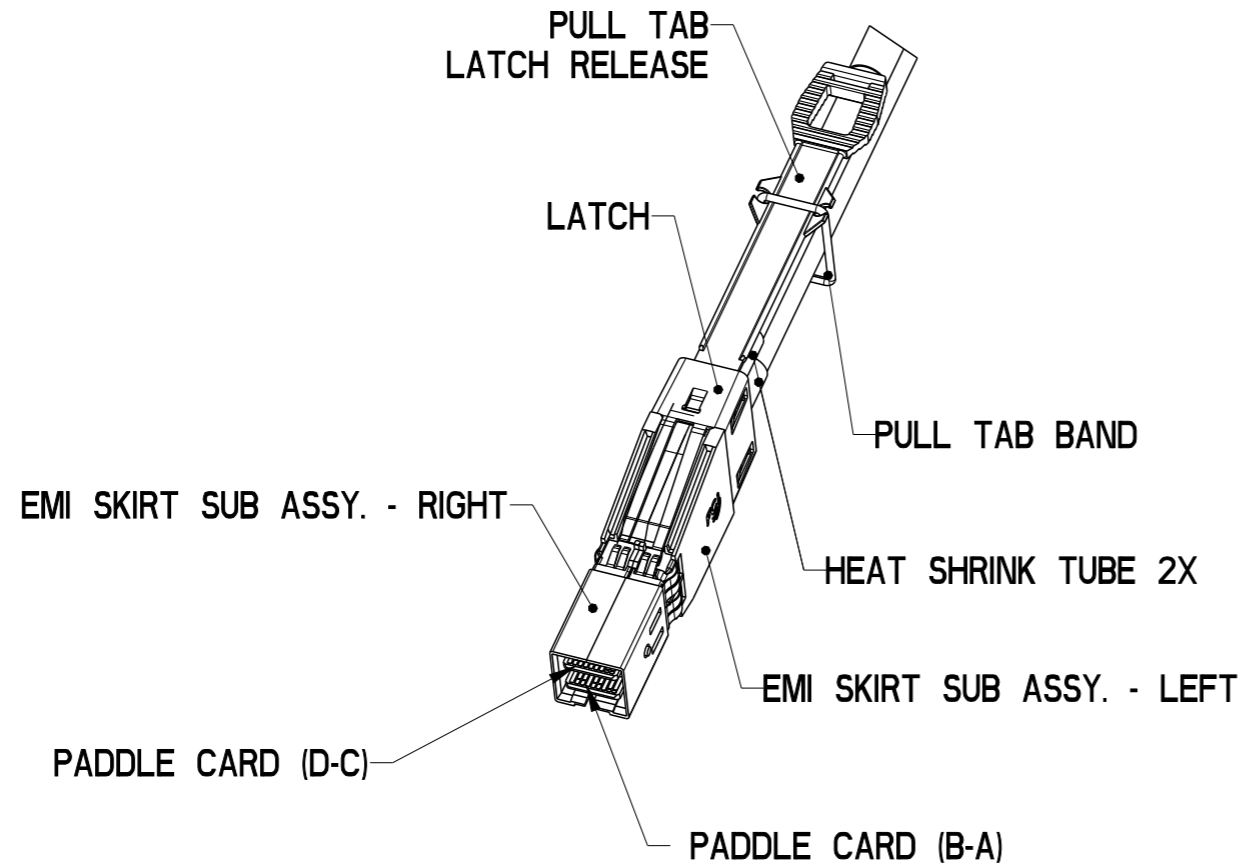
SECTION A-A  
SCALE 2:1  
CABLE ORIENTATION ONLY  
MSAS END P2

|             |                |   |                |                    |                        |               |              |     |
|-------------|----------------|---|----------------|--------------------|------------------------|---------------|--------------|-----|
| dr          | Deborah Ingram | 2011/06/07  | projection     | MM                 | size                   | A3            | scale        | 1:1 |
| eng         | Tom Feng       | 2015/08/12  |                |                    | ecn no                 | ELX-N-21245-1 |              |     |
| chr         | -              | -   |                |                    | rel level              | Released      |              |     |
| appr        | Frank Mao      | 2015/08/12  | product family | C&A                |                        |               |              |     |
|             |                | title<br>Mini SAS HD 4X TO Mini SAS 2.1<br>FINAL ASSEMBLY (6Gb/s) |                | dwg no<br>10117946 | rev<br>D               |               |              |     |
| www.fci.com |                | cat. no.  | -              |                    | Product - Customer Drw |               | sheet 1 of 6 |     |

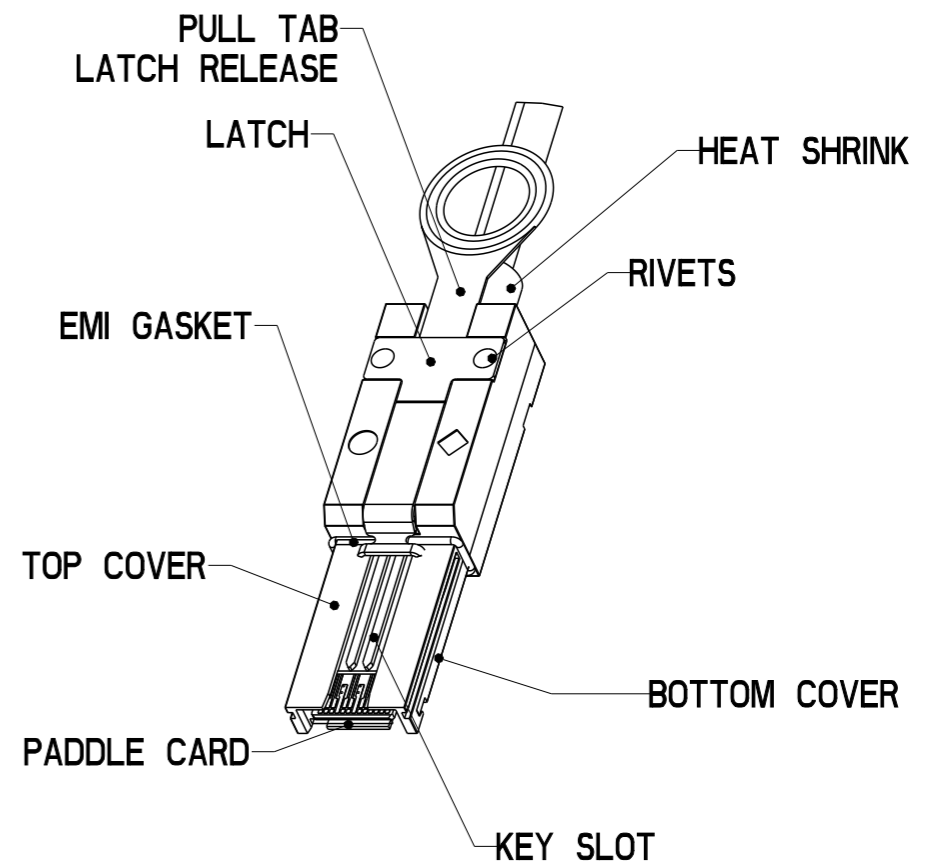


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| PRODUCT NUMBER   | DESCRIPTION      | NOTES      |
|------------------|------------------|------------|
| 10117946-XXXXLF  | NON-HF           | SEE SHT. 3 |
| 10117946-XXXXHLF | HALOGEN FREE (H) | SEE SHT. 3 |



END P1  
Mini SAS HD 4X  
ISOMETRIC VIEW



END P2  
Mini SAS  
ISOMETRIC VIEW

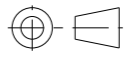

(KEY SLOT 2, 4 & 6  
○ ◇ UNIVERSAL PORT)

|             |                |            |                |     |                        |                                |              |        |          |
|-------------|----------------|------------|----------------|-----|------------------------|--------------------------------|--------------|--------|----------|
| dr          | Deborah Ingram | 2011/06/07 | projection     | MM  | size                   | A3                             | scale        | 1:1    |          |
| eng         | Tom Feng       | 2015/08/12 |                |     | ecn no                 | ELX-N-21245-1                  |              |        |          |
| chr         | -              | -          | product family | C&A | rel level              | Released                       |              |        |          |
| appr        | Frank Mao      | 2015/08/12 |                |     | title                  | Mini SAS HD 4X TO Mini SAS 2.1 |              | dwg no | 10117946 |
| www.fci.com |                | cat. no.   | -              |     | Product - Customer Drw |                                | sheet 2 of 6 |        |          |

| PRODUCT NUMBER   | DESCRIPTION      | NOTES      |
|------------------|------------------|------------|
| 10117946-XXXXLF  | NON-HF           | SEE SHT. 3 |
| 10117946-XXXXHLF | HALOGEN FREE (H) | SEE SHT. 3 |

| PRODUCT NUMBER<br>(HALOGEN FREE)<br>SEE NOTE 9 & 15 | AWG    | "DIM L"<br>LENGTH<br>(Meters) | "DIM M"<br>HIEGHT<br>(mm) |
|---|--------|-------------------------------|---------------------------|
| 10117946-5030HLF                                    | 24 AWG | 3 M                           | (20.1)                    |
| 10117946-5040HLF                                    | 24 AWG | 4 M                           | (20.1)                    |
| 10117946-5050HLF                                    | 24 AWG | 5 M                           | (20.1)                    |
| 10117946-5060HLF                                    | 24 AWG | 6 M                           | (20.1)                    |
| 10117946-5070HLF                                    | 24 AWG | 7 M                           | (20.1)                    |
| 10117946-5080HLF                                    | 24 AWG | 8 M                           | (20.1)                    |
| 10117946-5090HLF                                    | 24 AWG | 9 M                           | (20.1)                    |
| 10117946-5100HLF                                    | 24 AWG | 10 M                          | (20.1)                    |
| 10117946-4020HLF                                    | 26 AWG | 2 M                           | (20.1)                    |
| 10117946-4030HLF                                    | 26 AWG | 3 M                           | (20.1)                    |
| 10117946-4040HLF                                    | 26 AWG | 4 M                           | (20.1)                    |
| 10117946-4050HLF                                    | 26 AWG | 5 M                           | (20.1)                    |
| 10117946-4060HLF                                    | 26 AWG | 6 M                           | (20.1)                    |
| 10117946-4070HLF                                    | 26 AWG | 7 M                           | (20.1)                    |
| 10117946-4080HLF                                    | 26 AWG | 8 M                           | (20.1)                    |
| 10117946-3005HLF                                    | 28 AWG | 0.5 M                         | (17.3)                    |
| 10117946-3010HLF                                    | 28 AWG | 1 M                           | (17.3)                    |
| 10117946-3015HLF                                    | 28 AWG | 1.5 M                         | (17.3)                    |
| 10117946-3020HLF                                    | 28 AWG | 2 M                           | (17.3)                    |
| 10117946-3025HLF                                    | 28 AWG | 2.5 M                         | (17.3)                    |
| 10117946-3030HLF                                    | 28 AWG | 3 M                           | (17.3)                    |
| 10117946-3035HLF                                    | 28 AWG | 3.5 M                         | (17.3)                    |
| 10117946-3040HLF                                    | 28 AWG | 4 M                           | (17.3)                    |
| 10117946-3050HLF                                    | 28 AWG | 5 M                           | (17.3)                    |
| 10117946-3060HLF                                    | 28 AWG | 6 M                           | (17.3)                    |
| 10117946-2005HLF                                    | 30 AWG | 0.5 M                         | (17.3)                    |
| 10117946-2010HLF                                    | 30 AWG | 1 M                           | (17.3)                    |
| 10117946-2020HLF                                    | 30 AWG | 2 M                           | (17.3)                    |
| 10117946-2030HLF                                    | 30 AWG | 3 M                           | (17.3)                    |
| 10117946-2040HLF                                    | 30 AWG | 4 M                           | (17.3)                    |

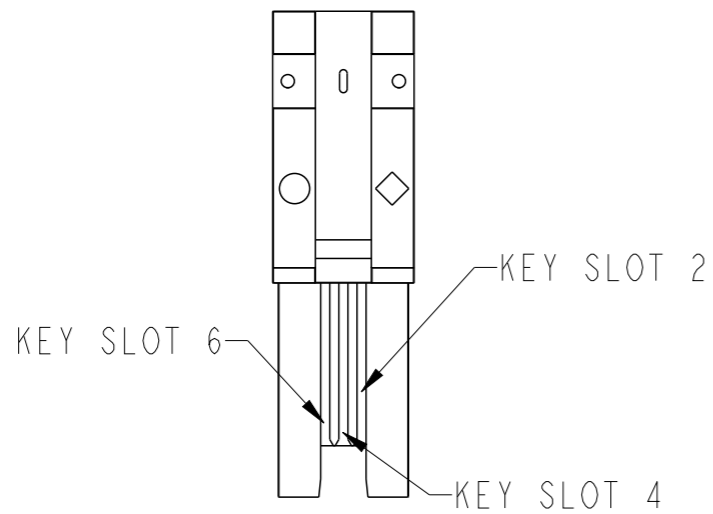
| PRODUCT NUMBER<br>(NON-HALOGEN FREE)<br>SEE NOTE 15 | AWG    | "DIM L"<br>LENGTH<br>(Meters) | "DIM M"<br>HIEGHT<br>(mm) |
|---|--------|-------------------------------|---------------------------|
| 10117946-5030LF                                     | 24 AWG | 3 M                           | (20.1)                    |
| 10117946-5040LF                                     | 24 AWG | 4 M                           | (20.1)                    |
| 10117946-5050LF                                     | 24 AWG | 5 M                           | (20.1)                    |
| 10117946-5060LF                                     | 24 AWG | 6 M                           | (20.1)                    |
| 10117946-5070LF                                     | 24 AWG | 7 M                           | (20.1)                    |
| 10117946-5080LF                                     | 24 AWG | 8 M                           | (20.1)                    |
| 10117946-5090LF                                     | 24 AWG | 9 M                           | (20.1)                    |
| 10117946-5100LF                                     | 24 AWG | 10 M                          | (20.1)                    |
| 10117946-4020LF                                     | 26 AWG | 2 M                           | (20.1)                    |
| 10117946-4030LF                                     | 26 AWG | 3 M                           | (20.1)                    |
| 10117946-4040LF                                     | 26 AWG | 4 M                           | (20.1)                    |
| 10117946-4050LF                                     | 26 AWG | 5 M                           | (20.1)                    |
| 10117946-4060LF                                     | 26 AWG | 6 M                           | (20.1)                    |
| 10117946-4070LF                                     | 26 AWG | 7 M                           | (20.1)                    |
| 10117946-4080LF                                     | 26 AWG | 8 M                           | (20.1)                    |
| 10117946-3005LF                                     | 28 AWG | 0.5 M                         | (17.3)                    |
| 10117946-3010LF                                     | 28 AWG | 1 M                           | (17.3)                    |
| 10117946-3015LF                                     | 28 AWG | 1.5 M                         | (17.3)                    |
| 10117946-3020LF                                     | 28 AWG | 2 M                           | (17.3)                    |
| 10117946-3025LF                                     | 28 AWG | 2.5 M                         | (17.3)                    |
| 10117946-3030LF                                     | 28 AWG | 3 M                           | (17.3)                    |
| 10117946-3035LF                                     | 28 AWG | 3.5 M                         | (17.3)                    |
| 10117946-3040LF                                     | 28 AWG | 4 M                           | (17.3)                    |
| 10117946-3050LF                                     | 28 AWG | 5 M                           | (17.3)                    |
| 10117946-3060LF                                     | 28 AWG | 6 M                           | (17.3)                    |
| 10117946-2005LF                                     | 30 AWG | 0.5 M                         | (17.3)                    |
| 10117946-2010LF                                     | 30 AWG | 1 M                           | (17.3)                    |
| 10117946-2020LF                                     | 30 AWG | 2 M                           | (17.3)                    |
| 10117946-2030LF                                     | 30 AWG | 3 M                           | (17.3)                    |
| 10117946-2040LF                                     | 30 AWG | 4 M                           | (17.3)                    |

|   |                |   |  |                        |               |              |     |
|---|----------------|---|--|------------------------|---------------|--------------|-----|
| dr  | Deborah Ingram | 2011/06/07  | projection<br><br>product family<br>C&A | size                   | A3            | scale        | 1:1 |
| eng   | Tom Feng       | 2015/08/12  |  | ecn no                 | ELX-N-21245-1 |              |     |
| chr   | -              | -   |  | rel level              | Released      |              |     |
| appr  | Frank Mao      | 2015/08/12  |  |                        |               |              |     |
|  |                | title<br>Mini SAS HD 4X TO Mini SAS 2.1<br>FINAL ASSEMBLY (6Gb/s) |  | dwg no<br>10117946     | rev<br>D      |              |     |
| www.fci.com   |                | cat. no.  | -  | Product - Customer Drw |               | sheet 3 of 6 |     |



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| PRODUCT NUMBER   | DESCRIPTION      | NOTES      |
|------------------|------------------|------------|
| 10117946-XXXXLF  | NON-HF           | SEE SHT. 3 |
| 10117946-XXXXHLF | HALOGEN FREE (H) | SEE SHT. 3 |



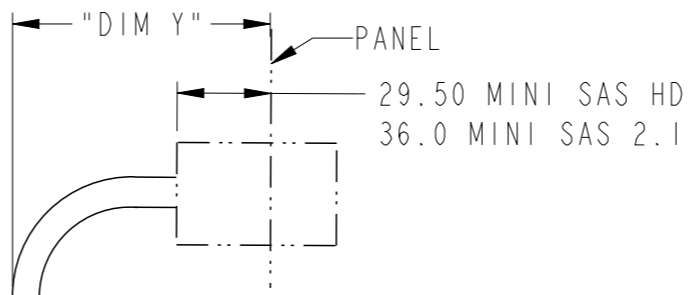
KEY SLOT 2, 4 & 6  
 ○◇ UNIVERSAL PORT

**END P2  
 MINI SAS**

| WIRING LIST (SEE NOTE 6) |      |                    |                  |        |
|--------------------------|------|--------------------|------------------|--------|
| P1<br>(MINI SAS HD)      |      | CONDUCTOR #        | P2<br>(MINI SAS) |        |
| SIGNAL                   | PIN# |                    | PIN#             | SIGNAL |
| GND                      | A9   |                    | B7               | GND    |
| Rx 1-                    | A5   | PAIR 2             | B6               | Tx 1-  |
| Rx 1+                    | A4   |                    | B5               | Tx 1+  |
| GND                      | A3   |                    | B4               | GND    |
| Rx 3-                    | A8   | PAIR 4             | B12              | Tx 3-  |
| Rx 3+                    | A7   |                    | B11              | Tx 3+  |
| GND                      | A6   |                    | B13              | GND    |
| N/C                      | A1   | NO THRU CONNECTION |                  |        |
| Interrupt                | A2   |                    |                  |        |
| GND                      | B9   |                    |                  | GND    |
| RX 0-                    | B5   | PAIR 1             | B3               | TX 0-  |
| RX 0+                    | B4   |                    | B2               | TX 0+  |
| GND                      | B3   |                    | B1               | GND    |
| RX 2-                    | B8   | PAIR 3             | B9               | TX 2-  |
| RX 2+                    | B7   |                    | B8               | TX 2+  |
| GND                      | B6   |                    | B10              | GND    |
| N/C                      | B1   | NO THRU CONNECTION |                  |        |
| Mod_PRS_L (GND)          | B2   |                    |                  |        |
| GND                      | C9   |                    | A7               | GND    |
| TX 1-                    | C5   | PAIR 2             | A6               | RX 1-  |
| TX 1+                    | C4   |                    | A5               | RX 1+  |
| GND                      | C3   |                    | A4               | GND    |
| TX 3-                    | C8   | PAIR 4             | A12              | RX 3-  |
| TX 3+                    | C7   |                    | A11              | RX 3+  |
| GND                      | C6   |                    | A13              | GND    |
| SCL                      | C1   | NO THRU CONNECTION |                  |        |
| SDA                      | C2   |                    |                  |        |
| GND                      | D9   |                    |                  | GND    |
| TX 0-                    | D5   | PAIR 1             | A3               | RX 0-  |
| TX 0+                    | D4   |                    | A2               | RX 0+  |
| GND                      | D3   |                    | A1               | GND    |
| TX 2-                    | D8   | PAIR 3             | A9               | RX 2-  |
| TX 2+                    | D7   |                    | A8               | RX 2+  |
| GND                      | D6   |                    | A10              | GND    |
| N/C                      | D1   | NO THRU CONNECTION |                  |        |
| V+3.3 for EEPROM         | D2   |                    |                  |        |
| SHELL                    |      | BRAID              |                  | SHELL  |

|             |                |   |            |                        |                |              |        |               |
|-------------|----------------|---|------------|------------------------|----------------|--------------|--------|---------------|
| dr          | Deborah Ingram | 2011/06/07  | projection | MM                     | size           | A3           | scale  | 1:1           |
| eng         | Tom Feng       | 2015/08/12  |            |                        | product family | C&A          | ecn no | ELX-N-21245-1 |
| chr         | -              | -   |            |                        |                |              |        |               |
| appr        | Frank Mao      | 2015/08/12  |            |                        |                |              |        |               |
|             |                | title<br>Mini SAS HD 4X TO Mini SAS 2.1<br>FINAL ASSEMBLY (6Gb/s) |            | dwg no<br>10117946     |                | rev<br>D     |        |               |
| www.fci.com |                | cat. no.  |            | Product - Customer Drw |                | sheet 4 of 6 |        |               |

| PRODUCT NUMBER   | DESCRIPTION      | NOTES      |
|------------------|------------------|------------|
| 10117946-XXXXLF  | NON-HF           | SEE SHT. 3 |
| 10117946-XXXXHLF | HALOGEN FREE (H) | SEE SHT. 3 |



PEND RADIUS  
TOP VIEW OF CONNECTOR

| MINI SAS HD<br>MINIMUM BEND TABLE |                 |                     |
|-----------------------------------|-----------------|---------------------|
| CABLE                             | "DIM Y"<br>(HF) | "DIM Y"<br>(NON-HF) |
| 24 AWG                            | 92.8            | 90.5                |
| 26 AWG                            | 87.5            | 85.1                |
| 28 AWG                            | 81.5            | 79.1                |
| 30 AWG                            | 77.9            | 74.3                |

| MINI SAS 2.1<br>MINIMUM BEND TABLE |                 |                     |
|------------------------------------|-----------------|---------------------|
| CABLE                              | "DIM Y"<br>(HF) | "DIM Y"<br>(NON-HF) |
| 24 AWG                             | 90.6            | 88.3                |
| 26 AWG                             | 85.3            | 82.9                |
| 28 AWG                             | 79.3            | 76.9                |
| 30 AWG                             | 75.7            | 72.1                |

|             |                |  |                |                        |           |               |       |     |
|-------------|----------------|--|----------------|------------------------|-----------|---------------|-------|-----|
| dr          | Deborah Ingram | 2011/06/07   | projection     | MM                     | size      | A3            | scale | 1:1 |
| eng         | Tom Feng       | 2015/08/12   |                |                        | ecn no    | ELX-N-21245-1 |       |     |
| chr         | -              | -  | product family | MiniSAS/SATA           | rel level | Released      |       |     |
| appr        | Frank Mao      | 2015/08/12   |                |                        |           |               |       |     |
|             |                | title Mini SAS HD 4X TO Mini SAS 2.1<br>FINAL ASSEMBLY (6Gb/s) |                | dwg no 10117946        | rev D     |               |       |     |
| www.fci.com |                | cat. no.   | -              | Product - Customer Drw |           | sheet 5 of 6  |       |     |



| PRODUCT NUMBER   | DESCRIPTION      | NOTES      |
|------------------|------------------|------------|
| 10117946-XXXXLF  | NON-HF           | SEE SHT. 3 |
| 10117946-XXXXHLF | HALOGEN FREE (H) | SEE SHT. 3 |

NOTES:

1 - MATERIALS MINI SAS HD (END P1)  
 BACK SHELLS: ZINC DIE CAST/ COPPER UNDER PLATE/NICKEL OVER PLATE  
 PULL TAB: THERMOPLASTIC POLYMER  
 LATCH: STAINLESS STEEL  
 FERRULE: BRASS  
 EMI GASKETS: STAINLESS STEEL  
 LOCTITE  
 HEAT SHRINK: HIGH POLYMER  
 PADDLE CARD: PRINTED CIRCUIT SUBSTRATE

MATERIALS MINI SAS (END P2)  
 BACK SHELLS: ZINC DIE CAST  
 PULL TAB: THERMOPLASTIC POLYMER  
 LATCH: STAINLESS STEEL  
 JET MELT: POLYAMIDE POLYMER  
 HEAT SHRINK: POLYOLEFIN  
 PADDLE CARD: PRINTED CIRCUIT SUBSTRATE

2 - ELECTRICAL PERFORMANCE PER CURRENT REVISION: T10/SAS-2.1

3 - THIS PRODUCT MEETS THE RESTRICTION OF HAZARDOUS SUBSTANCES IN ELECTRICAL AND ELECTRONIC EQUIPMENT (ROHS) DIRECTIVE (2011/65/EU)

4 - UNLESS OTHERWISE SPECIFIED ASSEMBLED LENGTH TOLERANCE IS TO BE:  
 "DIM L" < 1 METERS = ±25mm  
 "DIM L" = 1 METER TO 10 METER = 2% OF "DIM L"

5- LABEL DETAILS:

|                               |                |
|-------------------------------|----------------|
| MANUFACTURER CODE OR NAME     | COUNTRY ORIGIN |
| FCI P/N                       | <b>CE MARK</b> |
| FCI CUSTOMER DRAWING REVISION |                |
| FCI SERIAL NUMBER             |                |
| BAR CODE OF SERIAL NUMBER     |                |

FONT SHALL BE CLEARLY VISIBLE AND BLACK IN COLOR.  
 CE MARK VERTICAL DIMENSION MAY NOT BE LESS THAN 5mm.

6 - ALL CABLE ASSEMBLIES SHALL BE 100% TESTED FOR CONTINUITY AS DEFINED IN WIRING LIST.  
 7 - PACKAGING OF LEAD FREE PRODUCTS MEETS LABELING AND PACKAGING PER SPECIFICATION GS-14-920. PACKAGE CABLE ASSEMBLIES PER GS-14-1272. DUST COVER IS TO BE APPLIED TO MINI SAS HD CONNECTOR PRIOR TO SHIPPING. CE MARK SHOULD BE ADDED ON FCI STANDARD PACKAGE LABEL(G1 LABEL),CE MARK VERTICAL DIM. MAY NOT BE LESS THAN 5mm.

8- THIS DIMENSION IS A FINISHED PRODUCT LENGTH.

9. "H" IN THE PART NUMBER DENOTES USE OF HALOGEN FREE CABLE.

10. PLACE A CABLE TIE EVERY 0.5 METERS, IN THE CASE OF A 0.5 METER CABLE LENGTH, PLACE THE CABLE TIE MIDWAY BETWEEN CONNECTORS.

11. A "△" SYMBOL WILL BE NEXT TO ANY DIMENSION, VIEW, OR NOTE WHICH HAS BEEN MODIFIED WITH THE CURRENT DRAWING REVISION. THE CURRENT REVISION WILL BE SHOWN IN THE SYMBOL.

12. MATES TO SERIES: MINI SAS HD - 10112626 or 10112627 or 10112628  
 MINI SAS 2.1 - BOARD CONNECTOR 10098870 AND CAGE 10098871

13. OTHER TESTING PERFORMED AS REQUIRED BY PRODUCT SPECIFICATION: MINISAS HD GS-12-651, MINI SAS 2.1 GS-12-548

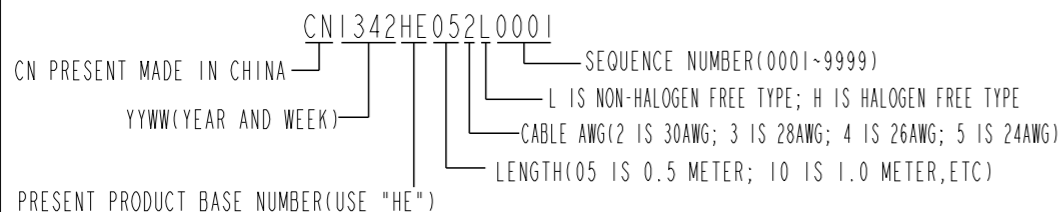
14. EEPROM INFORMATION OF MSHD SIDE REFER TO FCI PRODUCT SPEC. GS-12-651.

15. CABLE IS OPTIONAL, WHICH HAD BEEN QUALIFIED BY FCI AND MEET FCI PRODUCT SPEC. GS-12-651/548.

△ CABLE LABEL EXAMPLE:



FCI SERIAL NUMBER IS ONLY USED FOR TRACKING PRODUCT , SERIAL NUMBER IS DEFINED AS BELOW:



CE MARK VERTICAL DIMENSION MAY NOT BE LESS THAN 5mm,

|                |                |  |                |                        |               |
|----------------|----------------|--|----------------|------------------------|---------------|
| dr             | Deborah Ingram | 2011/06/07   | projection<br> | size<br>A3             | scale<br>1:1  |
| eng            | Tom Feng       | 2015/08/12   |                |                        |               |
| chr            | -              | -  |                |                        |               |
| appr           | Frank Mao      | 2015/08/12   |                |                        |               |
| product family |                |  | C&A            | ecn no                 | ELX-N-21245-1 |
| rel level      |                |  | Released       |                        |               |
|                |                | Mini SAS HD 4X TO Mini SAS 2.1<br>FINAL ASSEMBLY (6Gb/s) |                | dwg no<br>10117946     | rev<br>D      |
| www.fci.com    |                | cat. no.   | -              | Product - Customer Drw |               |
|                |                |  | sheet 6 of 6   |                        |               |

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Largest Supplier of Electrical and Electronic Components

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[1300660042](#) [1300660201](#) [1971465-2](#) [22733-8](#) [2R7004A20F060](#) [SSL009PC2DC012N](#) [FC2A-KC6C](#) [CCSFCBF2](#) [R7ACAB005S](#)  
[XS2WM12PUR4SA10M](#) [XS2WM12PVC4SA10M](#) [05AU05](#) [UCABLE](#) [10114734-2010LF](#) [XW2Z010H3](#) [XW2Z010H1](#) [5-1589827-8](#) [5-](#)  
[1589827-4](#) [861084-1](#) [XW2Z200JB24](#) [5-1589956-8](#) [CR4000A76M020](#) [1201140211](#) [1300140039](#) [CR4000A76M005](#) [CR4006A76M005](#)  
[10077488-N0550FDLF](#) [XW2ZRY150C](#) [I4JPBJLUXX100](#) [I4JPBJLUXX50](#) [CM06](#) [CM06W](#) [POE004](#) [0243 009 05](#) [0243 009 20](#) [0243 009 36](#)  
[0243 009 26](#) [0243 009 33](#) [0243 009 23](#) [0243 009 01](#) [0243 009 30](#) [0243 008 05](#) [0243 008 20](#)